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Weight loss maintenance on *ad libitum* diets varying in protein content and glycemic index: first results of the DIOGENES highly-controlled shop-based intervention.

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AIM To study the effects of protein content and glycemic index (GI) of the diet on weight loss maintenance during a 6-month highly controlled shop-based dietary intervention in 2 centers.

DESIGN After an 8 week low calorie diet (body weight (BW) loss 11±3%), 263 adults (106 men, 157 women; BW 99.8±15.6 kg, BMI 33.5±4.3 kg/m², age 42±6 y) were randomized to 5 *ad libitum* diets for 6 months: high protein/low GI (HP/LGI), HP/high GI (HP/HGI), low protein/high GI (LP/HGI), LP/low GI (LP/LGI) and control diet. Aim was a difference in protein intake of >10 energy% and in GI of >10 units. Foods were provided for free and registered through a shop system.

RESULTS 205 subjects (=78%) completed the 6-month intervention. Their BW increased 1.5±4.6 kg or 16.0±40.9% of initial weight loss (P<0.001). Weight regain across diets (in kg and as % of initial weight loss) was 2.1±3.9 and 19±35 (LP/LGI), 2.8±3.5 and 26±37 (LP/HGI), 0.8±4.3 and 8±39 (HP/LGI), 0.3±6.4 and 7±52 (HP/HGI), and 1.9±4.3 and 22±37 (control). Factorial ANOVA with BMI, gender and initial weight loss as covariates showed a significant main effect of protein content (P = 0.006 resp. 0.009), but no main effect of GI or interaction between protein and GI.

CONCLUSION A higher protein content of the diet improved weight loss maintenance, GI did not modify this effect.

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